

What is claimed:

1. Means for monolithically forming one-piece reflective pavement marker comprising:

a substantially hollowed structural body having a planar top surface, two inclined planar

faces with multiple reflective cells, said reflective cells each integrally includes an inside cell

like areas with multiple cube corner reflective elements open within hollow cavity air gaps

immediately beneath said reflective cells, two arcuate sides each having an arcuate grip

region and a planar base surface that includes an extended portion beyond the periphery of

said pavement marker body, said base surface includes the open ends of said multiple hollow

cavity air gaps, said reflective cells can have either rectangular or rhomboid shapes, said

marker forming means can utilize high impact resistant polymeric material for said forming

means, said marker forming means can be injection molded in one or in two stage color or

material composition, said hollow cavity air gaps each having a centerline that forms an

angle of about 60 to 90 degrees with respect to the corresponding planar base, said hollow

cavity air gaps separated from each other by an outwardly tapered load carrying partition

walls; and

means for abrasion resistant coating the exterior surface of said reflective pavement marker

with either a hard carbon, silicon dioxide, or aluminum oxides film, said coating means

utilizing either reactive sputtering with pressure controller, plasma enhanced chemical vapor

deposition method, or ion beam sputtering method.

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2. A method of in-place filling and agglutinating of a hollowed one-piece pavement marker comprising the steps of:

- a) providing tooling means which allow injection molding of said hollow pavement marker integrally including the cube corner reflective elements, said tooling means can mold said pavement marker in one or two stage color or material injection molding cycle;
- b) providing the load carrying interior walls with angular means defining multiple hollow cavity air gaps and providing periphery regions within the lower portions of said interior walls which allow sealing said integrally formed cube corner elements with a correspondingly shaped thin plastic sheet, whereby retaining the apexes of said cube corner reflective elements freely inside said hollow cavity air gaps said hollow cavity air gaps having centerlines inclined about 60 to 90 degrees with respect to the planar base surface of said pavement marker; [and]
- c) provide a hard film coating means utilizing either reactive sputtering, plasma enhanced chemical vapor deposition means or ion beam sputtering to coat the exterior surface of said pavement marker with abrasion resistance film of either, carbon, silicon dioxide, aluminum oxide or aluminum trioxides film, said coating means can utilize any hybrid process in chemical vapor deposition chamber using radio frequency plasma decomposition from a gas, such as normal butane, said plasma can be excited using an electromagnetic alternating fields, said coating means can also utilize reactive sputtering with pressure controller or ion beam sputtering process which can provide one or two stage gradual coating, said coating means can have an adhesive enhancing first layer on said substrate surface and simultaneously followed by a hard coat thereafter, and

- d) provide means for in-place marker dispensing and polymeric material injection system to simultaneously fill and agglutinate said reflective pavement marker on designated roadway lane, said injection system can have the means for multiple marker stacking, guiding and dispensing, said injection system can have an apparatus to hold a marker in-place on a roadway surface during said filling process, said one or two components polymer injection system can have heating elements and control means to simultaneously synchronize the above in-place dispensing, filling and agglutination process.

whereby said reflective pavement marker will be monolithically formed including said cube corner reflective elements with abrasion resistant carbon coated exterior surface and provided an in-place filling and agglutination means.